

**KENWOOD®**  
HI/FI STEREO COMPONENTS

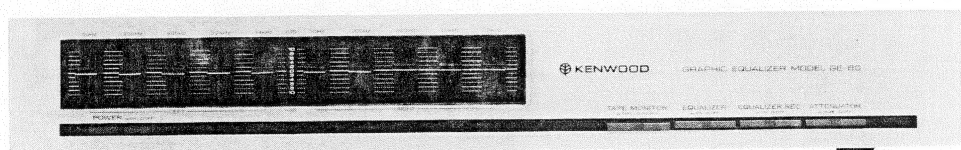
# SERVICE MANUAL

## GE-80/PM-80/RA-80

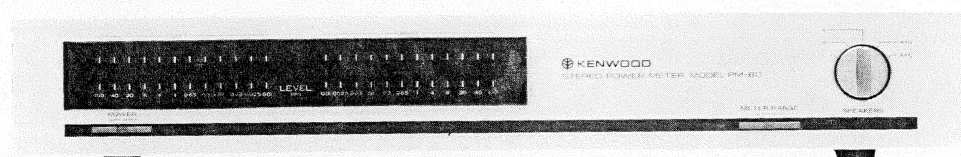
An item of adjustment is written in three languages — English, French and German.

*Un article sur réglages est écrit en trois langues, Anglais, Français et Allemand.*

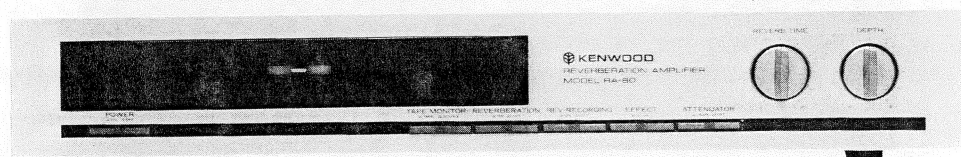
Ein Artikel der Abgleich wird auf drei Sprachen, Englische, Französisch und Deutsch geschrieben.



**GE-80**



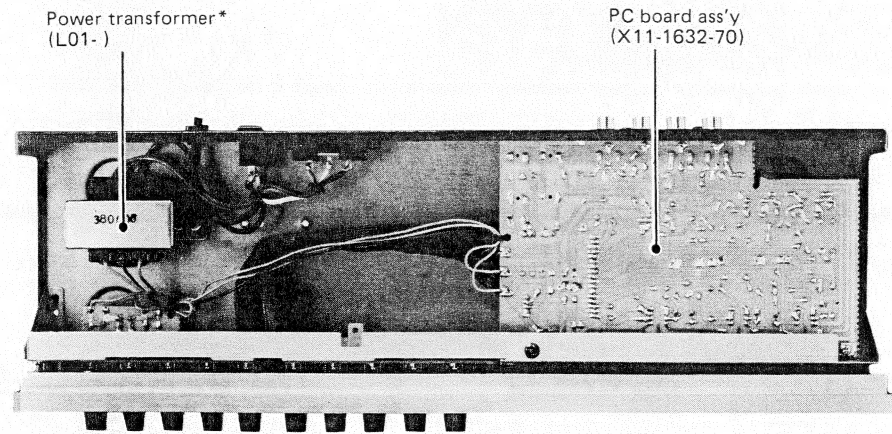
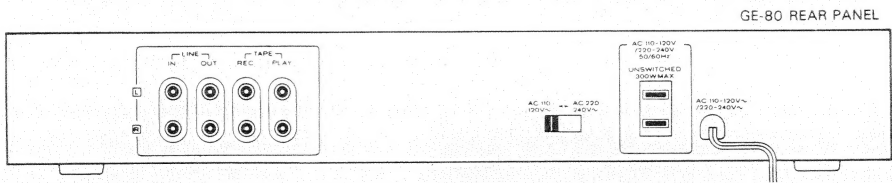
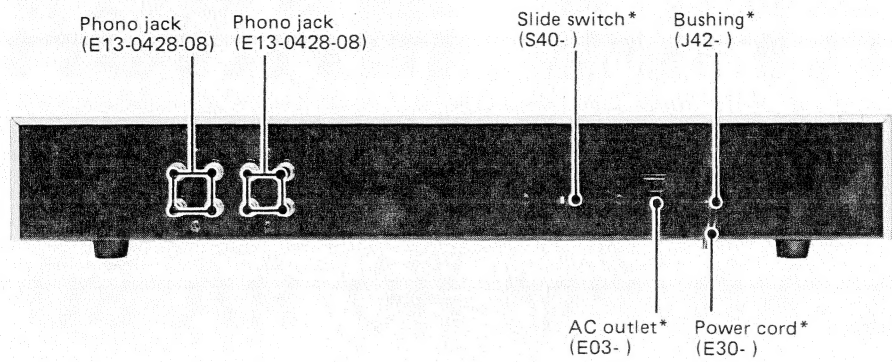
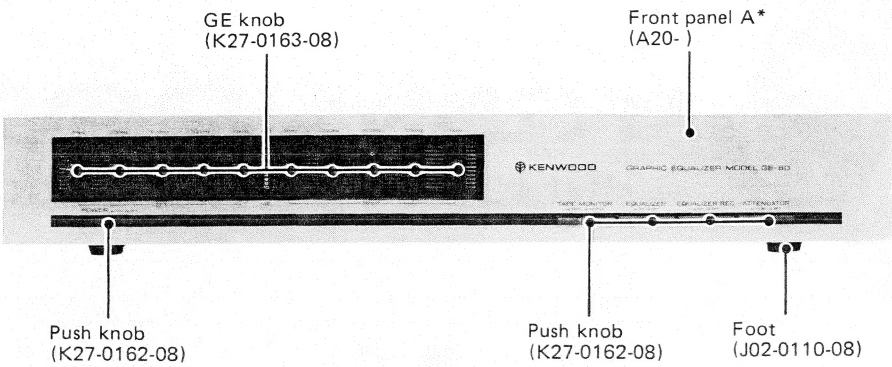
**PM-80**



**RA-80**

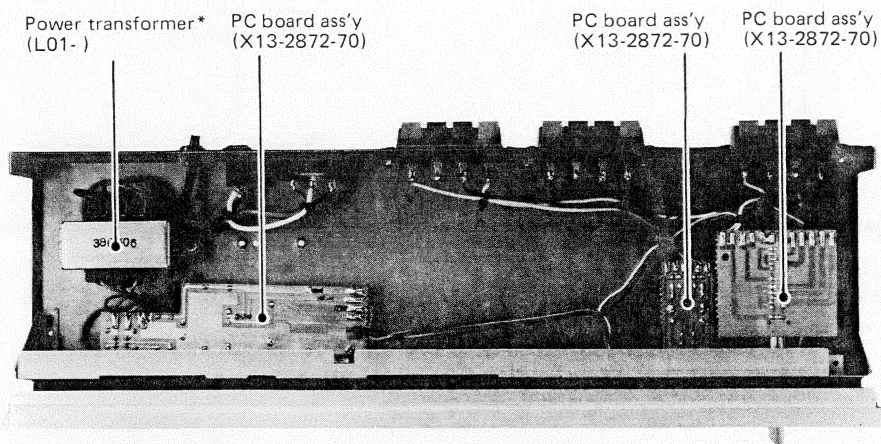
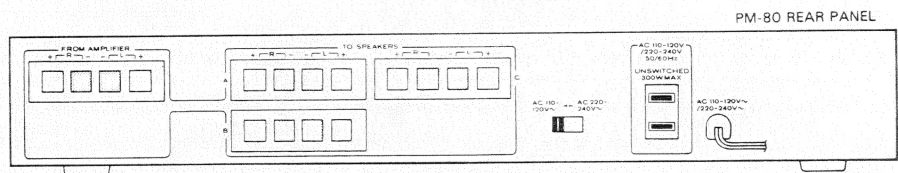
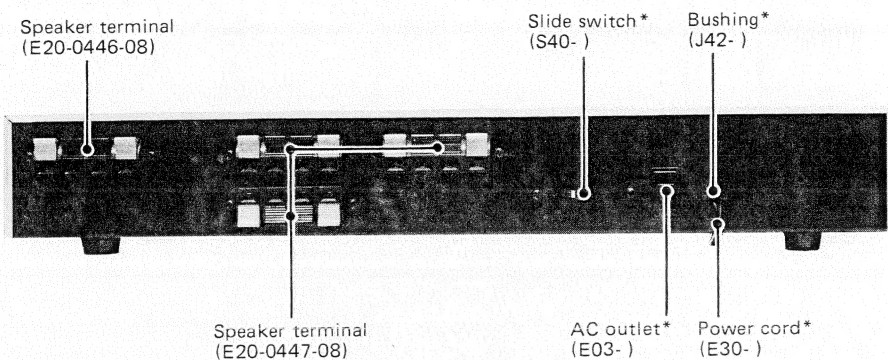
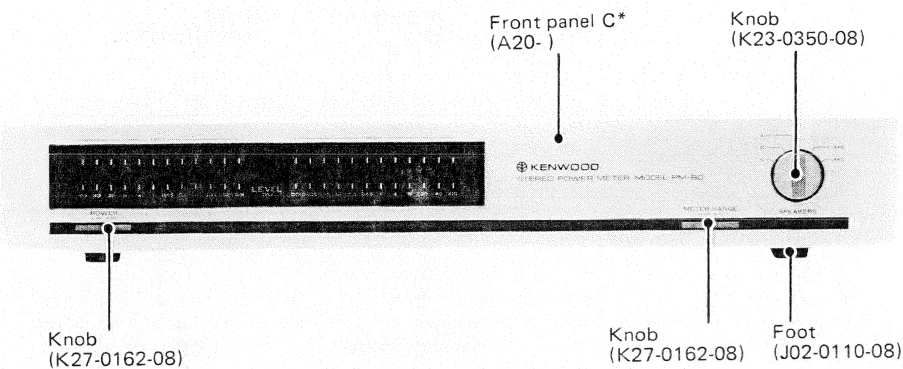
**GRAPHIC EQUALIZER / STEREO POWER METER / REVERBERATION AMPLIFIER**

# GE-80 EXTERNAL & INTERNAL VIEWS



\* Refer to Parts List.

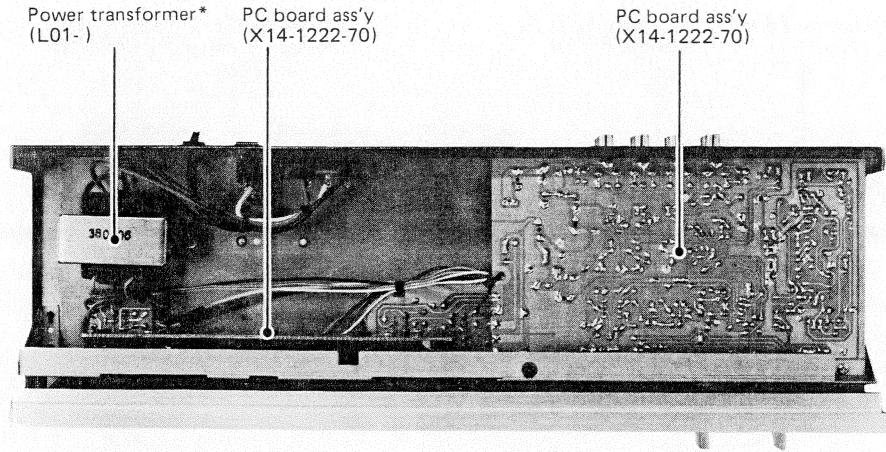
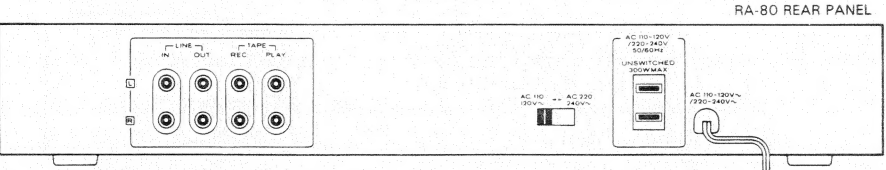
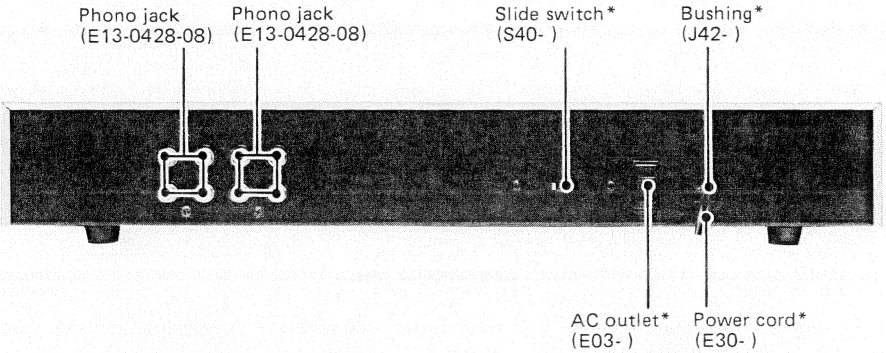
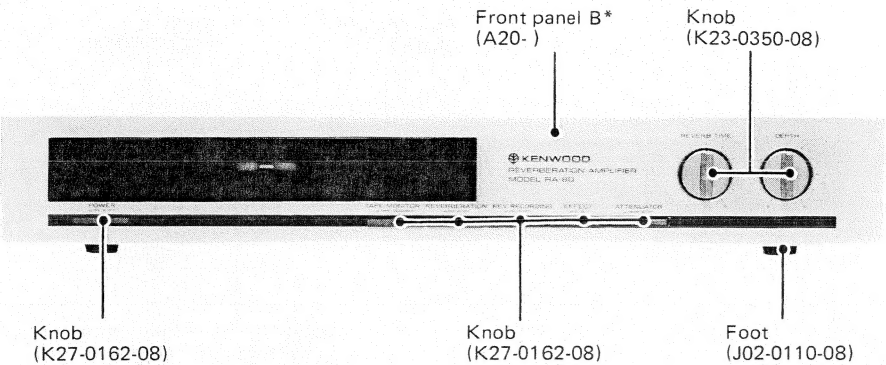
PM-80 EXTERNAL & INTERNAL VIEWS



\* Refer to Parts List.



# RA-80 EXTERNAL & INTERNAL VIEWS



\* Refer to Parts List.

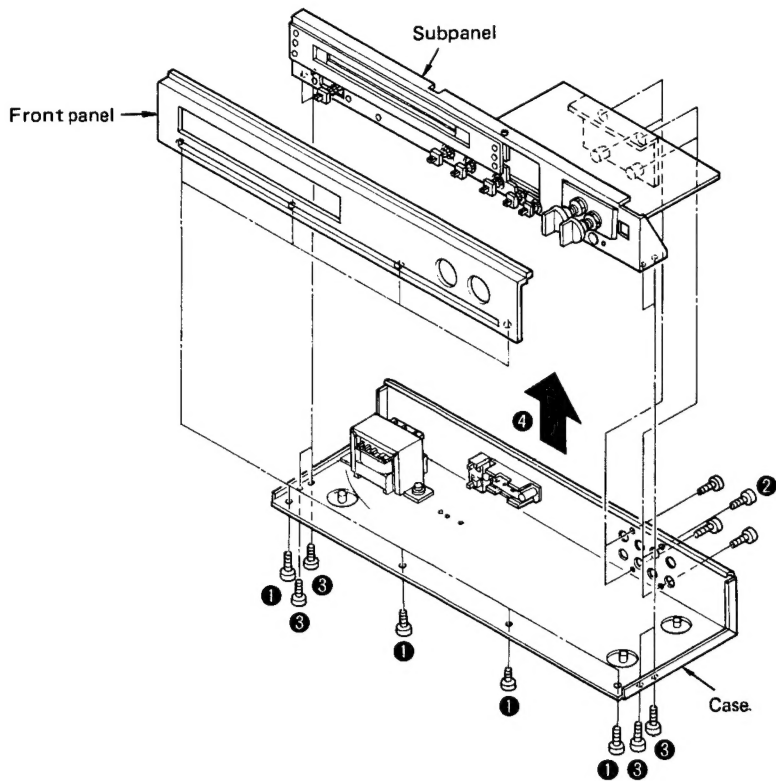


# **DISASSEMBLY FOR REPAIR**

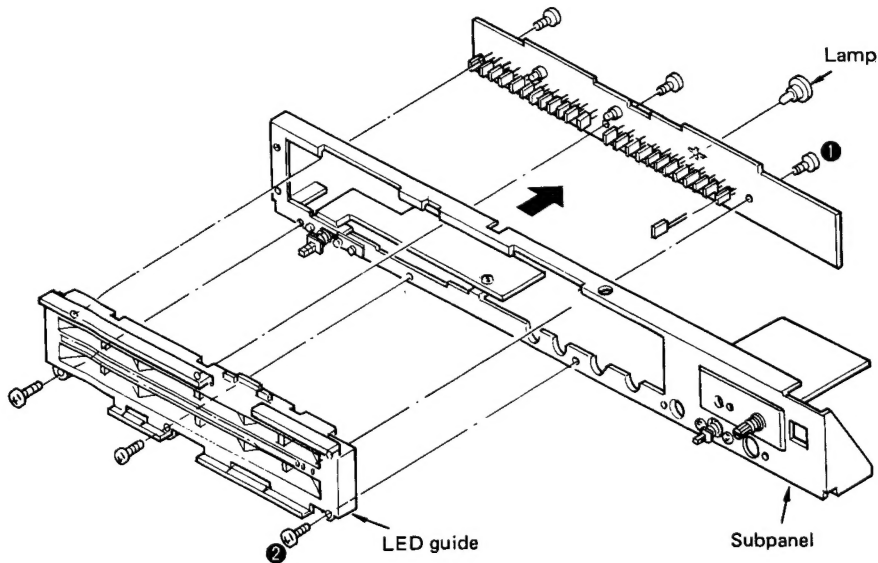
## **GE-80, RA-80 PCB ASS'Y DETACHMENT**

- ❶ Remove the screws from the front panel.
- ❷ Remove the screws from the phono jacks.
- ❸ Remove the screws from the case.
- ❹ Separate the subpanel ass'y from the case.

Note: Illustration is in case of the RA-80.



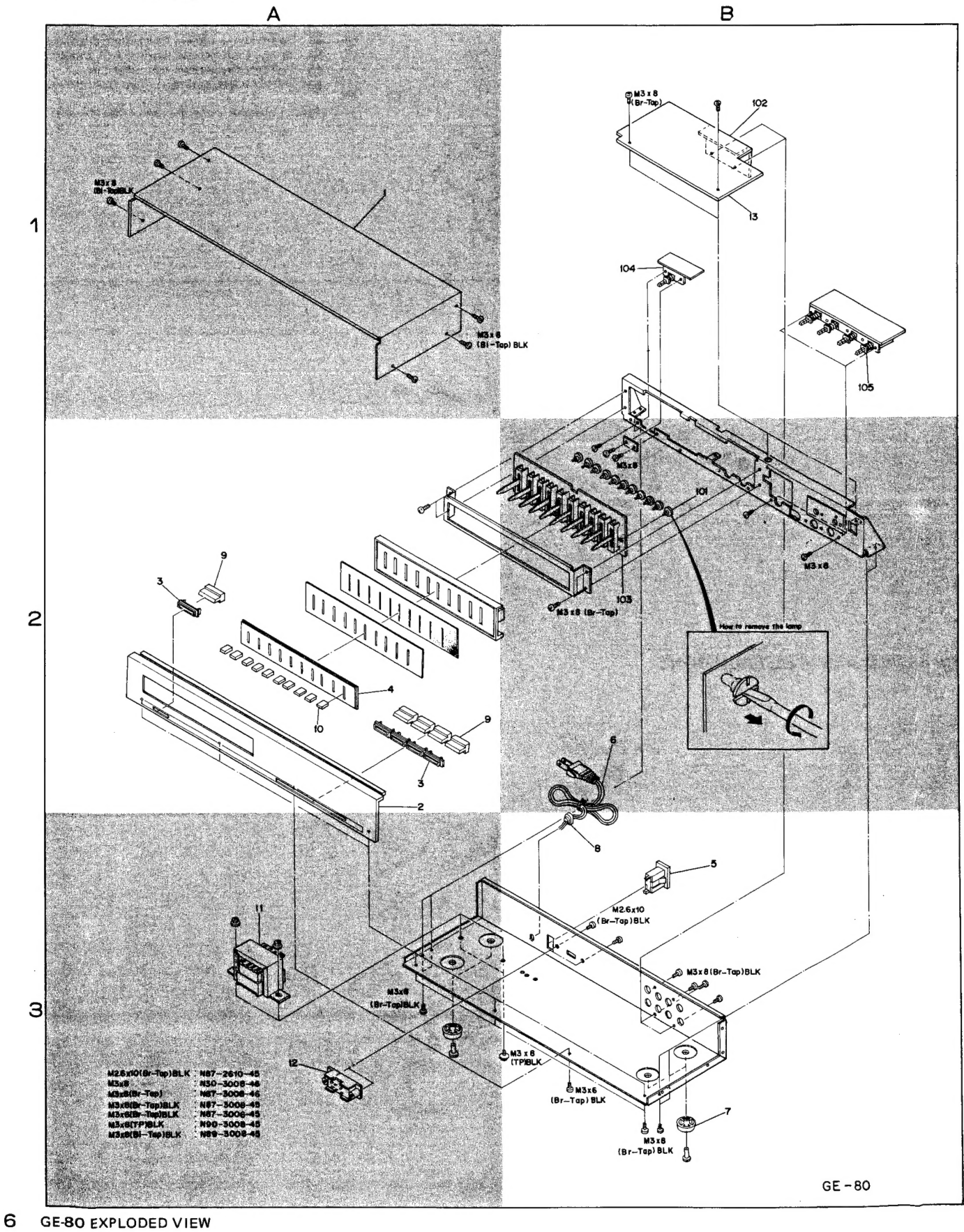
## **PM-80 PCB ASS'Y DETACHMENT**



- ❶ When replacing LEDs on the PC board, remove the screws from the PC board.
- ❷ When replacing LED's guide, remove the screws from the subpanel.

GE-80 EXPLODED VIEW

See Parts List on page 14.

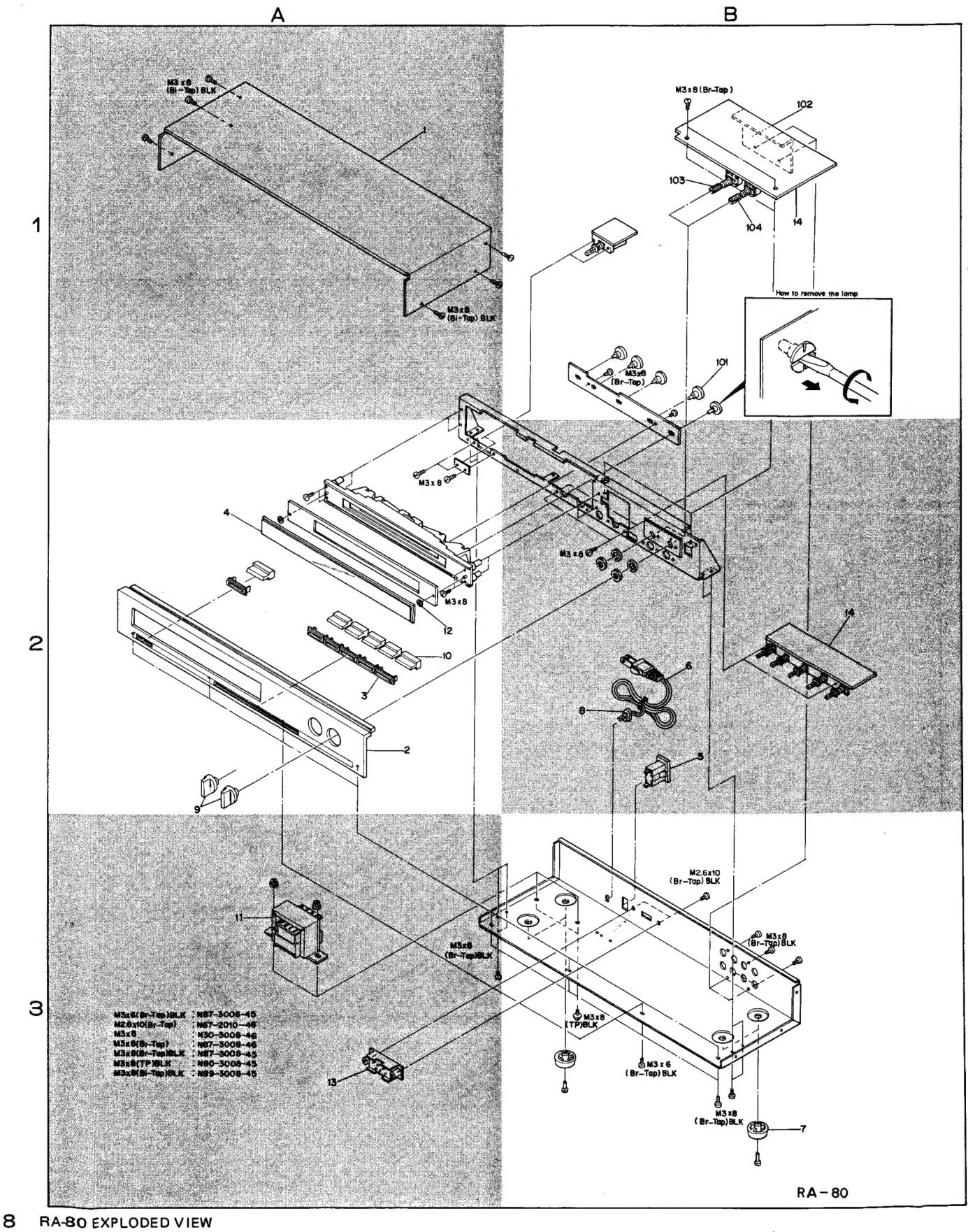






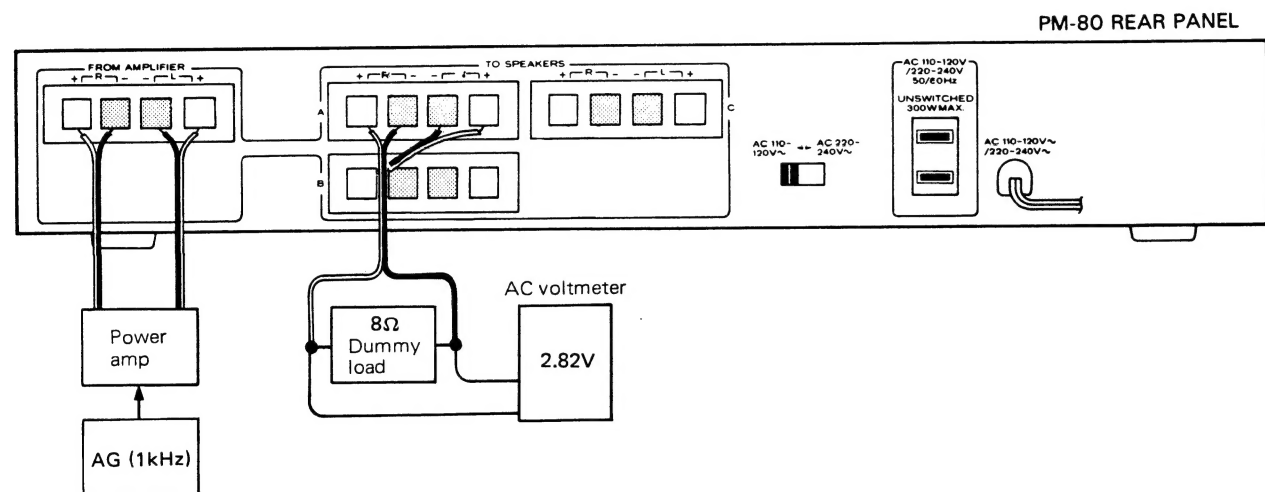
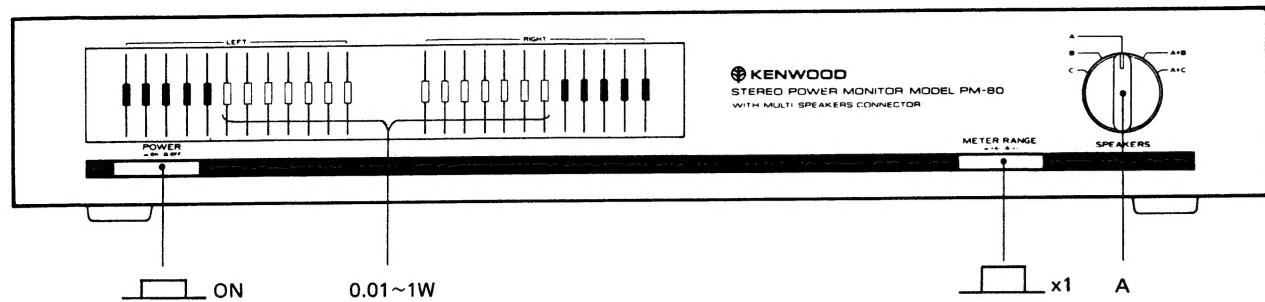
# RA-80 EXPLODED VIEW

See Parts List on page 15.



PM-80 ADJUSTMENT/RÉGLAGES/ABGLEICH

GE-80 PC BOARD



TEST INSTRUMENTS

Power amp  
Audio generator  
AC voltmeter  
Dummy load

APPAREILLAGE

Ampli  
Générateur audio fréquences  
Voltmètre CA  
Fausse charge (resistance)

PRÜFINSTRUMENTE

Leistungsverstärker  
NF-Signalgenerator  
Wechselspannungsmesser  
Belastungsnachbildung

POWER METER LEVEL ADJUSTMENT

1. Connect an AG (via a power amp) and a dummy load to "FROM AMPLIFIER" and "TO SPEAKERS" terminals respectively.
2. Connect an AC voltmeter across the dummy load.
3. Set the AG to 1kHz and its output for a 2.82V reading of the AC voltmeter.
4. Adjust the trimming pot. VR1 (VR21) for 1W reading of the power meter.

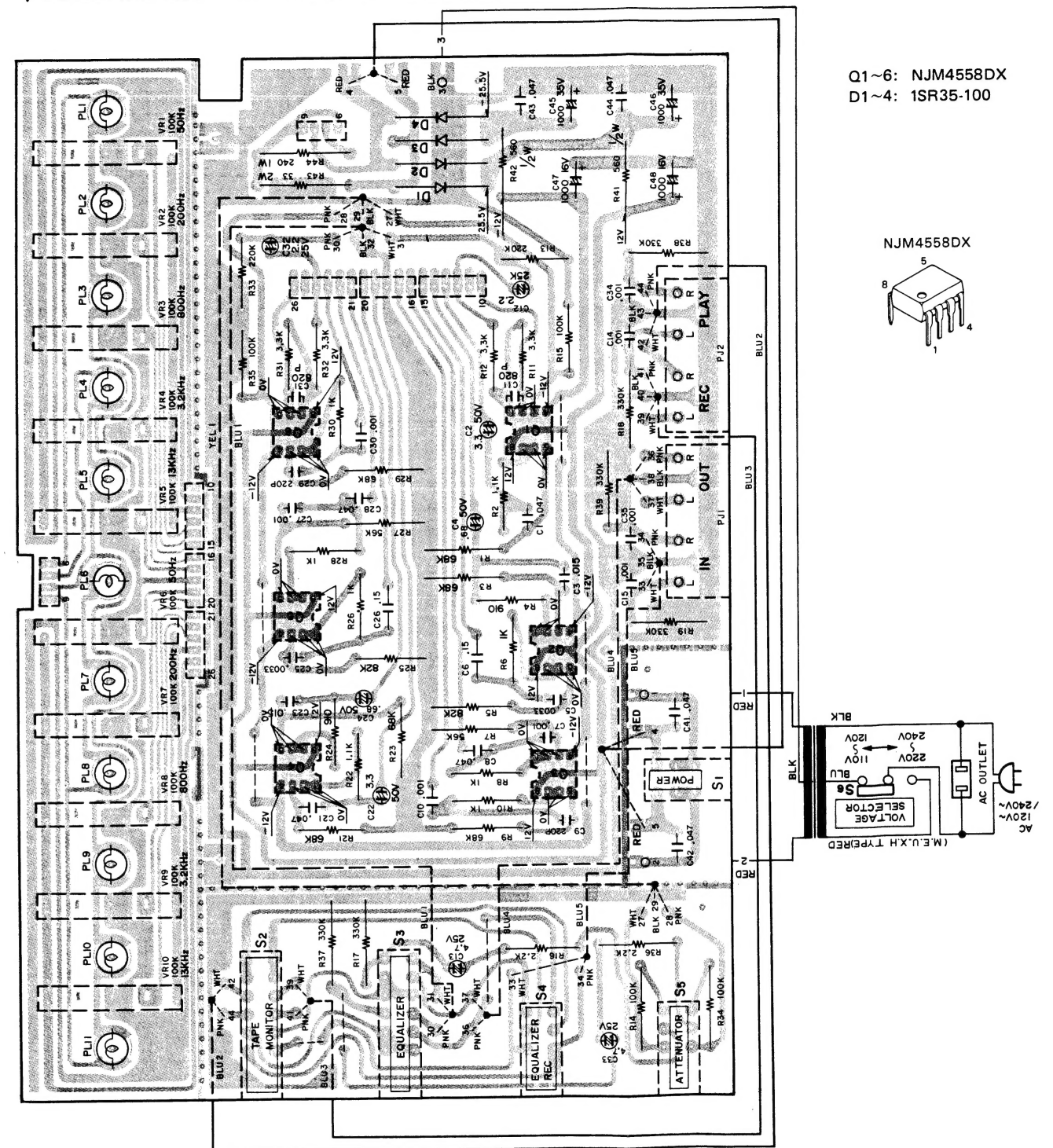
RÉGLAGE DU LED MÈTRE

1. Relier un AG (par un ampli) sur les prises "FROM AMPLIFIER" et une fausse charge (resistance) sur les bornes de "TO SPEAKERS".
2. Relier un voltmètre de C.A. aux deux extrémités de la resistance (ou aux borne de sortie + et -).
3. Régler le potentiomètre ajustable VR1 (VR21) en sorte que le LED's mètre indique 1W lorsque le voltmètre indique 2.82V/8Ω.

ABGLEICH DER LEISTUNGSMESSE (POWER METER)

1. Einen AG (via eine Leistungsverstärker) an die "FROM AMPLIFIER" und eine Belastungsnachbildung (8Ω, 10W oder mehr) an die "TO SPEAKERS" anschließen.
2. Einen Wechselspannungsmesser über die Belastungsnachbildung anschließen.
3. Den AG auf 1kHz einstellen.
4. Die Lautstärkereger (und/oder den AG-Ausgang) so einstellen, daß die Wechselspannungsmesser-Ableseung 2,82V ist.
5. Das Trimm-Potentiometer VR1 (VR21) so einstellen, daß die Leistungsmesser-Ableseung 1W ist.

PC BOARD ASS'Y (X11-1632-70) Foil side view



Q1~6: NJM4558DX  
D1~4: 1SR35-100

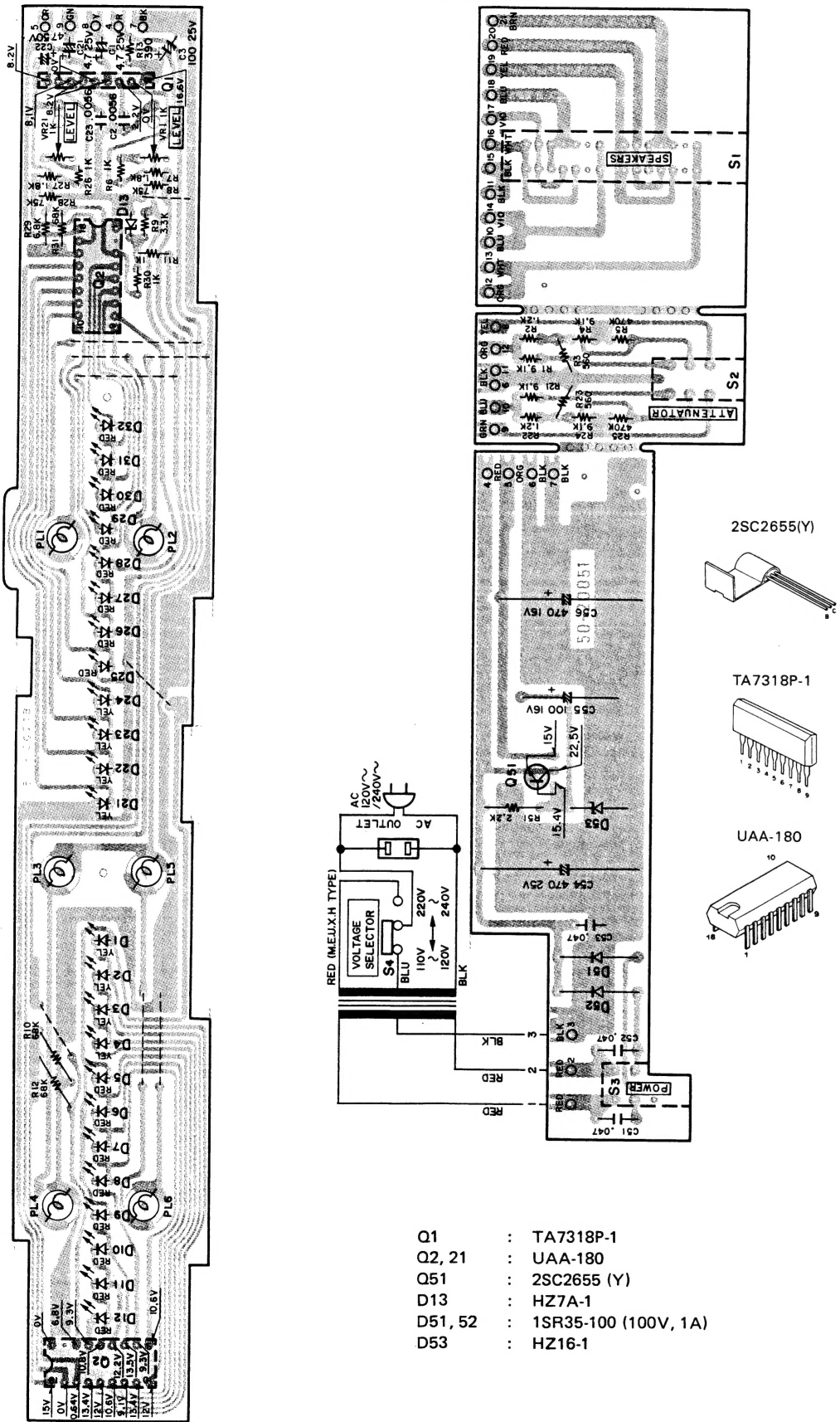




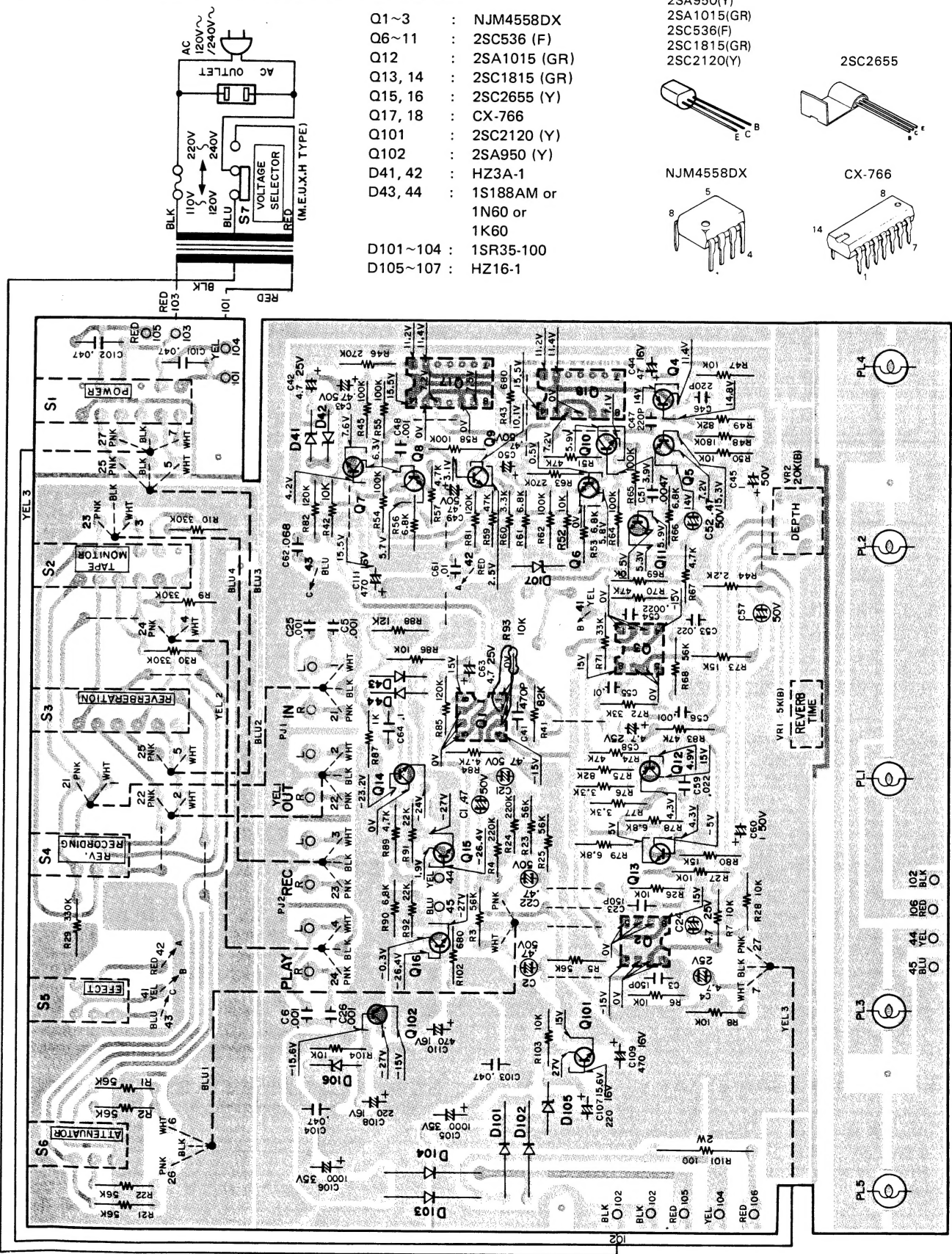
PM-80 PC BOARD

RA-80 PC BOARD

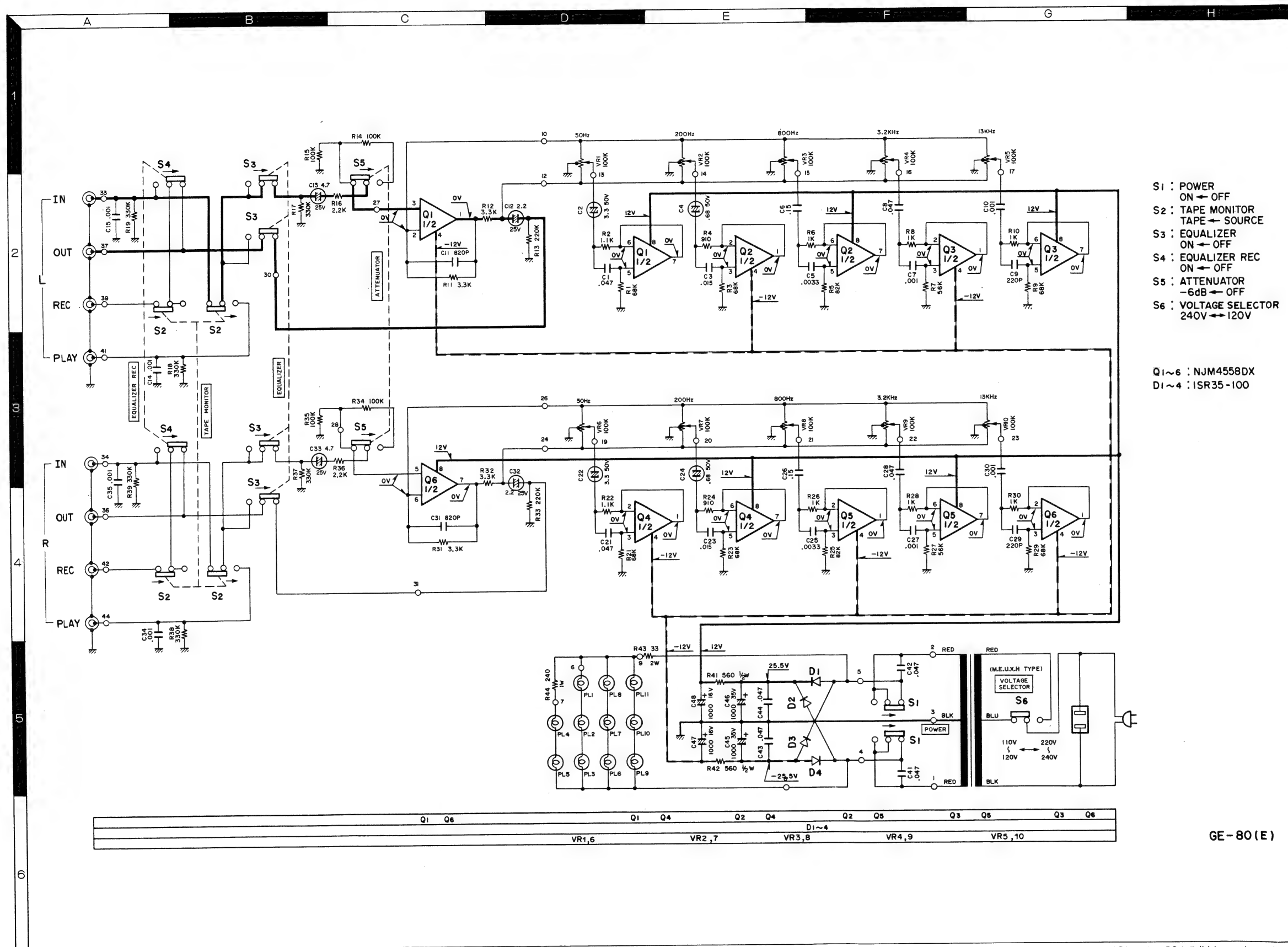
▼ PC BOARD ASS'Y (X13-2872-70) Foil side view



▼ PC BOARD ASS'Y (X14-1222-70) Foil side view







### SPECIFICATIONS

Equalizer characteristic	Variable range $\pm 10$ dB (L & R independently adjustable)
Crossover frequencies	50 Hz, 200 Hz, 800 Hz, 3.2 kHz, 13 kHz
Attenuation	-6 dB at 1 kHz
Frequency response	10 Hz - 60 kHz $\pm 0$ dB, -1 dB
Harmonic distortion	Less than 0.006% (20 Hz - 20 kHz, all controls flat, output 1 V)
Maximum output	5 V (1 kHz, THD 0.01%, PL 47 kohms)
S/N ratio	110 dB (Short-circuited IHF-A network)
Input impedance	47 kohms
Gain	0 dB $\pm 10$ dB
Power consumption	12 W
Dimensions	440(W) $\times$ 74(H) $\times$ 160(D) mm
Weight	2.7 kg (net), 3.1 kg (gross)

Kenwood follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.

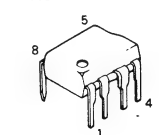
Kenwood strebt ständige Verbesserungen in der Entwicklung an. Daher bleiben Änderungen der technischen Daten jederzeit vorbehalten.

Kenwood poursuit une politique de progrès constants en ce qui concerne le développement. Pour cette raison, les spécifications sont sujettes à modifications sans préavis.

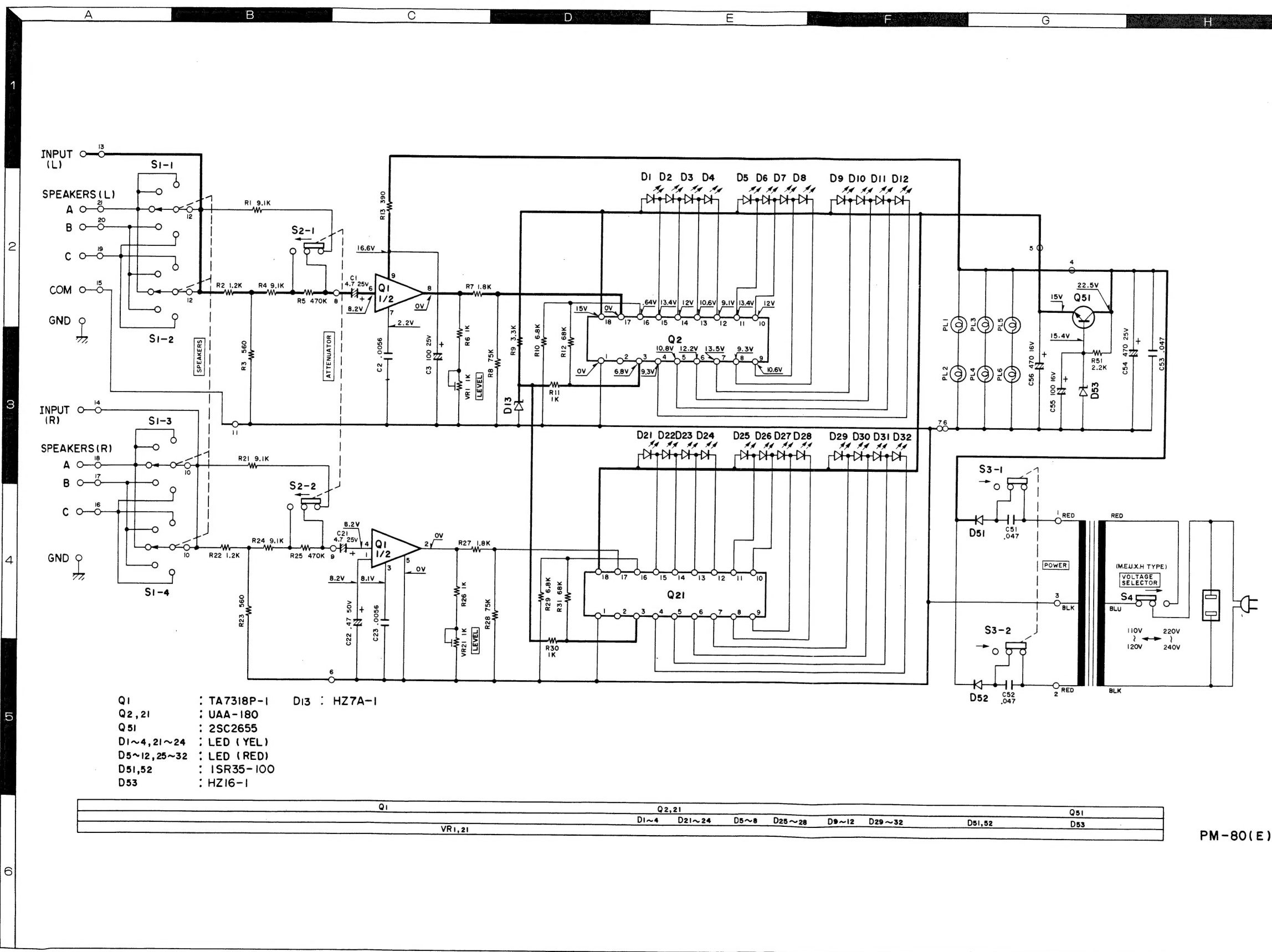
- S1 : POWER  
ON  $\leftrightarrow$  OFF
- S2 : TAPE MONITOR  
TAPE  $\leftrightarrow$  SOURCE
- S3 : EQUALIZER  
ON  $\leftrightarrow$  OFF
- S4 : EQUALIZER REC  
ON  $\leftrightarrow$  OFF
- S5 : ATTENUATOR  
-6dB  $\leftrightarrow$  OFF
- S6 : VOLTAGE SELECTOR  
240V  $\leftrightarrow$  120V

Q1~6 : NJM4558DX  
D1~4 : ISR35-100

NJM4558DX



GE-80(E)



### SPECIFICATIONS

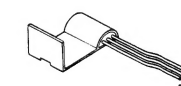
Power meter indication range	0.001-10W (x0.1)
	0.01-100W (x1)
Power meter accuracy	±1dB (x0.1)
	±1dB (x1)
Frequency response	20Hz-20kHz, ±1dB
Response time	7msec. (1kHz)
Speaker switch	Selects any of 3 sets of speaker systems.
	A, B, C plus A+B and A+C
Power consumption	13W
Dimensions	440(W) x 74(H) x 160(D) mm
Weight	2.7 kg (net), 3.1 kg (gross)

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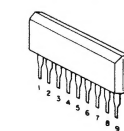
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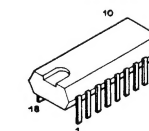
2SC2655(Y)



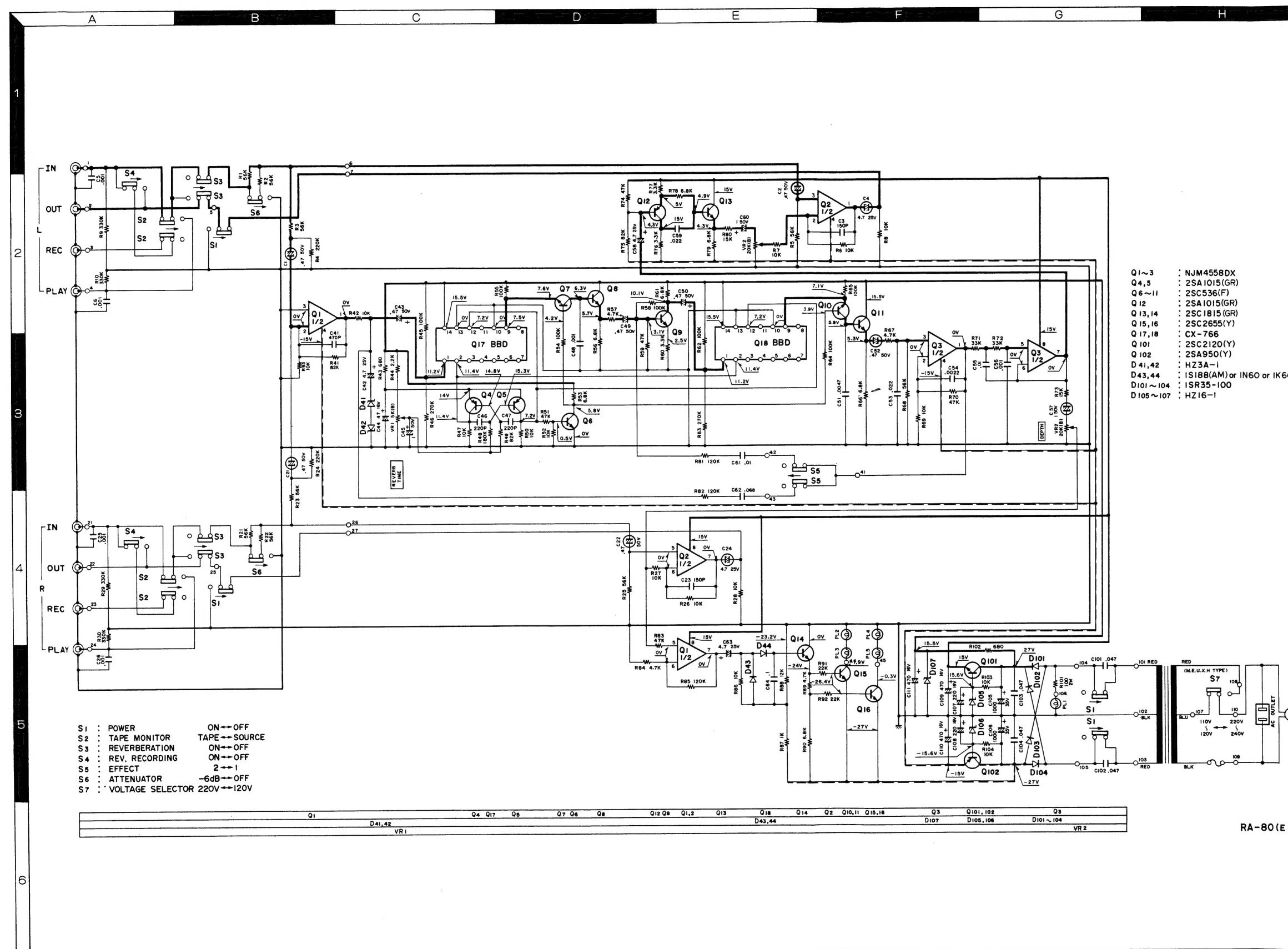
TA7318P-1



UAA-180



DC voltages are measured by a VOM with 20 kΩ/V input impedance.



### SPECIFICATIONS

Reverberation time	
Effect 1	0-2.5 sec.
Effect 2	30-80 msec.
Frequency response	15Hz-60 kHz, +0dB, -1dB
Harmonic distortion	Less than 0.008% (20Hz-20kHz, output 1V)
S/N ratio	100dB (Short-circuited IHF-A network)
Input impedance	47kohms
Attenuation	-6dB at 1kHz
Power consumption	12W
Dimensions	440(W) x 74(H) x 160(D)mm
Weight	2.7kg (net), 3.1kg (gross)

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Kenwood strebt ständige Verbesserungen in der Entwicklung an. Daher bleiben Änderungen der technischen Daten jederzeit vorbehalten.

Kenwood poursuit une politique de progrès constants en ce qui concerne le développement. Pour cette raison, les spécifications sont sujettes à modifications sans préavis.

2SA950(Y)  
 2SA1015(GR)  
 2SC536(F)  
 2SC1815(GR)  
 2SC2120(Y)

2SC2655

NJM4558DX

CX-766

DC voltages are measured by a VOM with 20 kΩ/V input impedance.



PARTS LIST

GE-80 PARTS LIST

☆ : New parts

Ref. No.	Parts No.	Description	Re- marks
TOTAL (GE-80)			
1 1A	A01-0386-08	Cabinet	
2 2A	A20-1685-08	Front panel A	E ☆
2 2B	A20-1690-08	Front panel A	K,M,U,X,H ☆
2 2B	A20-1691-08	Front panel A	T ☆
3 2A	B07-0342-08	Knob guide x5	☆
4 2A	B11-0010-08	Filter A	☆
—	B50-3165-00	Instruction manual	UE,K,U,M,H,X ☆
—	B50-3166-00	Instruction manual	T ☆
—	B50-3167-00	Instruction manual (French)	E,M,X ☆
—	B50-3168-00	Instruction manual (Germany)	E ☆
—	B50-3169-00	Instruction manual (Dutch)	E ☆
—	B50-3170-00	Instruction manual (Swedish)	E ☆
5 3B	E03-0029-08	AC outlet	E ☆
5 3B	E03-0032-08	AC outlet	K ☆
5 3B	E03-0033-08	AC outlet	M,U,H ☆
—	E30-0652-08	Audio cord	☆
6 2B	E30-0651-08	Power cord	E ☆
6 2B	E30-0658-08	Power cord	M,U,H ☆
6 2B	E30-0659-08	Power cord	K ☆
6 2B	E30-0660-08	Power cord	T ☆
6 2B	E30-0661-08	Power cord	X ☆
—	H01-3183-08	Carton case	E ☆
—	H01-3200-08	Carton case	K,M,U,X,H ☆
—	H10-1554-08	Packing L	☆
—	H10-1555-08	Packing R	☆
—	H20-0461-08	Protection bag	☆
7 3B	J02-0110-08	Foot x4	☆
8 3B	J42-0088-08	Bushing	E,T ☆
8 3B	J42-0089-08	Bushing	U,M,H ☆
8 3B	J42-0090-08	Bushing	K ☆
8 3B	J42-0091-08	Bushing	X ☆
9 2A	K27-0162-08	Push knob x5	☆
10 2A	K27-0163-08	GE knob x10	☆
11 3A	L01-2124-08	Power transformer	K ☆
11 3A	L01-2126-08	Power transformer	M,E,T,U,X,H ☆
12 3A	S40-1026-08	Slide switch	M,E,U,X,H ☆
13 1B	X11-1632-70	PC board ass'y	☆
PCB ASS'Y (X11-1632-70)			
101 2B	B30-0245-08	Lamp (0.05A)	☆
C1, 21	C46-1747-35	Mylar 0.047μF	K
C2, 22	C26-1733-57	NP-Electrolytic 3.3μF	50WV
C3, 23	C46-1715-35	Mylar 0.015μF	K
C4, 24	C26-1768-47	NP-Electrolytic 0.68μF	50WV
C5, 25	C46-1733-25	Mylar 0.0033μF	K
C6, 26	C46-1715-46	Mylar 0.15μF	K
C7, 27	C46-1710-26	Mylar 0.001μF	K
C8, 28	C46-1747-35	Mylar 0.047μF	K

**Note:**  
Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on the Europe (E) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

Region	Code
U.S.A.	K
Canada	P
PX(Far East)	U
PX(Europe)	UE
Australia	X
Europe	E
England	T
South Africa	S
Other Areas	M
Audio Club	H

There is no plan for producing units of P and S types.

- Abbreviations of capacitors (Parts No. with initial letter "C")  
ELECTRO Electrolytic capacitor  
LL-ELEC Low leak electrolytic capacitor  
NP-ELEC Non-pole electrolytic capacitor  
MICA Mica capacitor  
POLYSTY Polystyrene capacitor  
MYLAR Mylar capacitor  
CERAMIC Ceramic capacitor  
TANTAL Tantalum capacitor  
MF Metallized film capacitor  
OIL Oil capacitor  
The unit "UF" is used in lieu of "μF"

- Abbreviations of resistors (Parts No. with initial letters "R")  
RC Carbon composition resistor  
RD Carbon film resistor  
FL-PROOF RD Flame-proof carbon film resistor  
RW Wire wound power resistor  
FL-PROOF RS Flame-proof metal oxide film resistor  
RN Metal film resistor  
2B Rated wattage 1/8W  
2E Rated wattage 1/4W  
2H Rated wattage 1/2W  
3A Rated wattage 1W  
3D Rated wattage 2W  
3F Rated wattage 3W  
3G Rated wattage 4W  
3H Rated wattage 5W  
All resistor values are indicated with the unit (Ω) omitted.

- Abbreviations common to capacitors and resistors.  
C ±0.25pF (Used for capacitors only)  
D ±0.5pF (Used for capacitors only)  
F ±1%  
G ±2%  
J ±5%  
K ±10%  
M ±20%  
Z +80% — 20% (Used for capacitors only)  
P +100% — 0% (Used for capacitors only)  
Resistors RD (carbon composition resistors) are not listed in the parts list. For values, refer to the schematic diagram.

PARTS LIST

Ref. No.	Parts No.	Description	Re- marks
C9, 29	C47-1722-15	Polystyrene 220pF	J
C10, 30	C46-1710-26	Mylar 0.001μF	K
C11, 31	C52-1710-26	Ceramic 0.001μF	K
C12, 32	C26-1722-57	NP-Electrolytic 2.2μF	50WV
C13, 33	C26-1447-57	NP-Electrolytic 4.7μF	25WV
C14, 15	C52-1710-26	Ceramic 0.001μF	K
C34, 35	C52-1710-26	Ceramic 0.001μF	K
C41, 42	C53-1747-37	Ceramic 0.047μF	M
C43, 44	C55-1747-38	Ceramic 0.047μF	Z
C45, 46	C24-6510-71	Electrolytic 100μF	35WV
C47, 48	C24-1210-81	Electrolytic 1000μF	16WV
102 1B	E13-0428-08	Phono jack (4P) x2	☆
R41, 42	R40-8356-15	FL-proof RC 560Ω	J 2H
R43	R47-5533-05	FL-proof RS 33Ω	J 3D
R44	R47-5424-05	FL-proof RS 240Ω	J 3A
VR1~10	R13-5025-08	Slide pot 100kΩ (B)	Fig. 103 ☆
S1	S40-4014-08	Pushbutton switch (POWER)	Fig. 104 ☆
S2~5	S42-4014-08	4 keys pushbutton switch	Fig. 105 ☆
Q1~6	V30-1020-26	IC NJM4558DX	
D1~4	V11-5101-50	Diode 1SR35-100	☆
Ref. No.	Parts No.	Description	Re- marks
—	H01-3184-08	Carton case	E ☆
—	H01-3204-08	Carton case	K,M,U,X,H ☆
—	H10-1554-08	Packing L	
—	H10-1555-08	Packing R	
—	H20-0461-08	Protection bag	
11 3B	J02-0110-08	Foot x4	
12 2B	J42-0088-08	Bushing	E,T
12 2B	J42-0089-08	Bushing	U,M,H
12 2B	J42-0090-08	Bushing	K
12 2B	J42-0091-08	Bushing	X
13 2A	K23-0350-08	Knob (rotary)	
14 2A	K27-0162-08	Knob (push) x2	
15 3A	L01-2124-08	Power transformer	K
15 3A	L01-2126-08	Power transformer	M,E,T,U,X,H
16 3A	S40-1026-08	Slide switch	M,E,U,X,H ☆
17 1B	X13-2872-70	PC board ass'y	☆
PCB ASS'Y (X13-2872-70)			
101 1B, 2B	B30-0244-08	Lamp (0.1A)	
D1~4	B30-0247-08	LED PY5531K (YEL)	
D21~24	B30-0247-08	LED PY5531K (YEL)	
D5~12	B30-0246-08	LED PR5531K (RED)	
D25~32	B30-0246-08	LED PR5531K (RED)	
C1	C24-1447-51	Electrolytic 4.7μF	25WV
C2	C46-1756-24	Mylar 0.0056μF	G
C3	C24-1410-71	Electrolytic 100μF	25WV
C21	C24-1447-51	Electrolytic 4.7μF	25WV
C22	C24-1447-41	Electrolytic 0.47μF	25WV
C23	C46-1756-24	Mylar 0.0056μF	G
C51, 52	C53-1747-37	Ceramic 0.047μF	M
C53	C55-1747-38	Ceramic 0.047μF	Z
C54	C24-1447-71	Electrolytic 470μF	25WV
C55	C24-1210-71	Electrolytic 100μF	16WV
C56	C24-1247-71	Electrolytic 470μF	16WV
VR1, 21	R12-1049-08	Trimming pot 1kΩ (B)	
S1	S29-1128-08	Rotary-Slide switch	Fig. 102 ☆
S2	S40-1028-08	Pushbutton switch	Fig. 103 ☆
S3	S40-1029-01	Pushbutton switch	Fig. 104 ☆
Q1	V30-0292-10	IC TA7318P-1	
Q2, 21	V30-0502-10	IC UAA-180	☆
Q51	V03-2655-10	Transistor 2SC2655 (Y)	
D13	V11-2104-20	Zener diode HZ7A-1	☆
D51, 52	V11-5101-50	Diode 1SR35-100 (100V, 1A)	
D53	V11-2104-30	Zener diode HZ16-1	

PM-80 PARTS LIST

Ref. No.	Parts No.	Description	Re- marks
TOTAL (PM-80)			
1 1A	A01-0386-08	Cabinet	
2 2A	A20-1684-08	Front panel C	E ☆
2 2A	A20-1694-08	Front panel C	K,M,U,X,H ☆
2 2A	A20-1695-08	Front panel C	T ☆
3 2A	B07-0342-08	Knob guide x2	
4 2A	B11-0009-08	Filter B	☆
—	B50-3165-00	Instruction manual	UE,K,U,M,H,X ☆
—	B50-3166-00	Instruction manual	T ☆
—	B50-3167-00	Instruction manual (French)	E,M,X ☆
—	B50-3168-00	Instruction manual (Germany)	E ☆
—	B50-3169-00	Instruction manual (Dutch)	E ☆
—	B50-3170-00	Instruction manual (Swedish)	E ☆
5 2B	E03-0029-08	AC outlet	E ☆
5 2B	E03-0032-08	AC outlet	K ☆
5 2B	E03-0033-08	AC outlet	M,U,H ☆
6 3B	E20-0446-08	Speaker terminal	☆
7 3A	E20-0447-08	Speaker terminal x3	☆
—	E30-0650-08	Speaker cord ass'y	M,E,T,U,X,H ☆
—	E30-0677-08	Speaker cord ass'y	K ☆
9 2B	E30-0651-08	Power cord	E ☆
9 2B	E30-0658-08	Power cord	M,U,H ☆
9 2B	E30-0659-08	Power cord	K ☆
9 2B	E30-0660-08	Power cord	T ☆
9 2B	E30-0661-08	Power cord	X ☆

## PARTS LIST

## RA-80 PARTS LIST

Ref. No.	Parts No.	Description	Re- marks	Ref. No.	Parts No.	Description	Re- marks
TOTAL (RA-80)				PCB ASS'Y (X14-1220-70, 2-70)			
1 1A	A01-0386-08	Cabinet		101 1B	B30-0244-08	Lamp (0.1A)	☆
2 2A	A20-1683-08	Front panel B	E	C1, 2	C26-1747-47	NP-electrolytic 0.47μF 50WV	
2 2A	A20-1692-08	Front panel B	K,M,U,X,H	C21, 22	C26-1747-47	NP-electrolytic 0.47μF 50WV	
2 2A	A20-1693-08	Front panel B	T	C3, 23	C71-1747-16	Ceramic 470pF K	
3 2A	B07-0342-08	Knob guide x6		C4, 24	C26-1747-57	NP-electrolytic 4.7μF 50WV	
4 2A	B11-0008-08	Filter B		C5, 6	C52-1710-26	Ceramic 0.001μF K	
—	B50-3165-00	Instruction manual	UE,K,U,M,H,X	C25, 26	C52-1710-26	Ceramic 0.001μF K	
—	B50-3166-00	Instruction manual	T	C41	C71-1747-16	Ceramic 470pF J	
—	B50-3167-00	Instruction manual (French)	E,M,X	C42	C24-1447-51	Electrolytic 4.7μF 25WV	
—	B50-3168-00	Instruction manual (Germany)	E	C43	C24-1747-41	Electrolytic 0.47μF 50WV	
—	B50-3169-00	Instruction manual (Dutch)	E	C44	C24-1247-61	Electrolytic 47μF 16WV	
—	B50-3170-00	Instruction manual (Swedish)	E	C45	C24-1710-51	Electrolytic 1μF 50WV	
5 2B	E03-0029-08	AC outlet	E	C46, 47	C47-1722-15	Polystyrene 220pF J	
5 2B	E03-0032-08	AC outlet	K	C48	C46-1710-26	Mylar 0.001μF K	
5 2B	E03-0033-08	AC outlet	M,U,H	C49, 50	C24-1747-41	Electrolytic 0.47μF 50WV	
—	E30-0652-08	Audio cord	M,T,U,X,H	C51	C46-1747-25	Mylar 0.0047μF J	
—	E30-0669-08	Audio cord	K	C52	C26-1747-47	NP-electrolytic 0.47μF 50WV	
6 2B	E30-0651-08	Power cord	E	C53, 54	C46-1722-35	Mylar 0.022μF J	
6 2B	E30-0658-08	Power cord	M,U,H	C55	C46-1710-35	Mylar 0.01μF J	
6 2B	E30-0659-08	Power cord	K	C56	C46-1710-26	Mylar 0.001μF K	
6 2B	E30-0660-08	Power cord	T	C57	C26-1710-57	NP-electrolytic 1μF 50WV	
6 2B	E30-0661-08	Power cord	X	C58	C24-1447-51	Electrolytic 4.7μF 25WV	
—	H01-3182-08	Carton case	E	C59	C46-1722-35	Mylar 0.022μF J	
—	H01-3202-08	Carton case	K,M,U,X,H	C60	C24-1710-51	Electrolytic 1μF 50WV	
—	H10-1554-08	Packing L		C61	C46-1710-35	Mylar 0.01μF J	
—	H10-1555-08	Packing R		C62	C46-1768-35	Mylar 0.068μF J	
—	H20-0461-08	Protection bag		C63	C24-1447-51	Electrolytic 4.7μF 25WV	
7 3B	J02-0110-08	Foot x4		C101~104	C53-1747-37	Ceramic 0.047μF M	
8 2B	J42-0088-08	Bushing	E,T	C105,106	C24-6510-81	Electrolytic 1000μF 35WV	
8 2B	J42-0089-08	Bushing	U,M,H	C107,108	C24-1222-71	Electrolytic 220μF 16WV	
8 2B	J42-0090-08	Bushing	K	C109~111	C24-1247-71	Electrolytic 470μF 16WV	
8 2B	J42-0091-08	Bushing	X				
9 2A	K23-0350-08	Knob (rotary) x2		102 1B	E13-0428-08	Phono jack (4P) x2	
10 2A	K27-0162-08	Knob (push) x6		R101	R47-5410-15	FL-proof RS 100Ω J 3D	
11 3A	L01-2124-08	Power transformer	K	VR1	R01-2014-08	Potentiometer 5kΩ (B) Fig. 103	☆
11 3A	L01-2126-08	Power transformer	M,E,T,U,X,H	VR2	R06-3021-08	Potentiometer 20kΩ (B) Fig. 104	☆
12 2A	N29-0052-08	CS ring x2		S1	S40-1027-08	Pushbutton switch (POWER)	☆
13 3A	S40-1026-08	Slide switch	M,E,U,X,H	S2~6	S42-5018-08	5 keys pushbutton switch	☆
14 1B, 2B	X14-1222-70	PC board ass'y		Q1~3	V30-1020-26	IC NJM4558DX	
				Q6~11	V03-0339-05	Transistor 2SC536 (F)	
				Q12	V01-1015-20	Transistor 2SA1015 (GR)	☆
				Q13, 14	V03-1815-10	Transistor 2SC1815 (GR)	
				Q15, 16	V03-2655-10	Transistor 2SC2655 (Y)	☆
				Q17, 18	V30-0501-10	IC CX-766	☆
				Q101	V03-2120-00	Transistor 2SC2120 (Y)	
				Q102	V01-0950-00	Transistor 2SA950 (Y)	☆
				D41, 42	V11-2104-10	Zener diode HZ3A-1	☆
				D43, 44	V11-9990-05	Diode 1S188AM or	
					V11-0051-05	1N60 or	☆
					V11-9725-05	1K60	☆
				D101~104	V11-5101-50	Diode 1SR35-100	☆
				D105~107	V11-2104-30	Zener diode HZ16-1	☆